CIRC ACCESSION NO--AP0106809

ABSTRACT/EXTRACT--THE OVERALL YIELD OF THE ACID WAS 85PERCENT, AND THE
  PERCENT COMPN. OF THE ACIDS WAS SUCCINIC 28, IV 24, III 26, MALEIC 18,
  AND FUMARIC 3. HIGHER YIELDS WERE OBTAINED FROM RESIDUES WITH A HIGH
  INITIAL CONTENT OF ALDEHYDES.   SAMPLES WITH LOW ALDEHYDE CONTENT GAVE
  POOR YIELDS (AT CONTENT 22PERCENT, THE YIELD OF TOTAL ACID WAS
  21.6PERCENT.

UNCLASSIFIED

1/2   014   UNCLASSIFIED   PROCESSING DATE--27NOV70
TITLE--BETA,ACETYLACRYLIC ACID -U-

AUTHOR-(02)-BADOVSKAYA, L.A., KULNEVICH, V.G.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 220,257
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ACRYLIC ACID, CHEMICAL PATENT, ALKYL RADICAL, FURFURAL,
  OXIDATION, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1582   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0135223
                         UNCLASSIFIED

2/2   014   UNCLASSIFIED   PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135223
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   BETA,ACETYLACRYLIC ACID IS PREPD.
  BY OXIDN. OF 5,METHYLFURFURAL WITH H SUB2 O SUB2 AT 65DEGREES.

UNCLASSIFIED

1/2   021   UNCLASSIFIED   PROCESSING DATE--20NOV70
TITLE--EFFECT OF ULTRASOUND ON FURFURAL HYDROGEN PEROXIDE WATER SYSTEMS
   -U-
AUTHOR-(03)-BADOVSKAYA, L.A., KARYAKIN, A.V., KULNEVICH, V.G.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., KHIM. KHIM. TEKHNOL. 1970, 13(2), 221-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--FURFURAL, HYDROGEN PEROXIDE, ULTRASONIC RADIATION, FUMARIC
   ACID, ACRYLIC ACID, FORMIC ACID, MALEIC ACID, SUCCINIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/0169   STEP NO--UR/0153/70/013/002/0221/0224

CIRC ACCESSION NO--AT0132446
                    UNCLASSIFIED

CIRC ACCESSION NO--AT0132446

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. PRODUCTS OF THE REACTION OF
   FURFURAL (I) WITH H_2O, 30PERCENT H_2O_2, OR 1.5-3.0PERCENT H
   H_2O_2 AND H_2O, FOR 5 HR AT 25DEGREES, WHILE THE MIXT. IS
   ULTRASONICALLY IRRADIATED AT 800 KHZ, INCLUDE PYROMUCIC, FUMARIC, BETA
   FORMYLACRYLIC, FORMIC, MALEIC, SUCCINIC, AND MALIC ACIDS. UNDER
   IRRADN., THE RATE OF LOSS OF I AND OF FORMATION OF TOTAL ACIDS IS 2 OR
   MORE TIMES AS RAPID AS IN ITS ABSENCE. FURTHER, MALIC ACID IS NOT A
   SIGNIFICANT PRODUCT IN THE ABSENCE OF ULTRASONIC IRRADN., SO THAT THE
   EFFECT OF THE LATTER IS NOT ONLY AN ACCELERATION OF OXIDN., DUE IN PART
   TO THE PRODUCTION OF PEROXIDE DURING IRRADN., BUT ALSO INCLUDES
   INITIATION OF HYDROGENATION REACTIONS.   FACILITY: KRASNODAR.
   POLITEKH. INST., KRASNODAR, USSR.

USSR   UDC 547.752

PAPAYAN, G. L., and BADOYAN, YE. A., Institute of Fine Organic Chemistry
imeni A. L. Midzhoyan, Academy of Sciences Armenian SSR

"Derivatives of Indole. Products of the Interaction of 3-Indolyl- and 1-
Benzyl-3-indolylmethylidenemalonic Esters with Potassium Cyanide"

Abstract: 1-Benzyl-3-indolylmethylidenemalonic acid diethyl ester (I;m.
78-80°) was prepared by reacting 1-benzylindole-3-aldehyde with diethyl
malonic ester.   Reduction of I with LiAlH$_4$ yielded 3-(1-benzyl-3-indolyl)-
-2-hydroxymethylallyl alcohol, while hydrolysis of I resulted in the formation
of alpha-carboxy-beta-(1-benzyl-3-indolyl)acrylic acid (m. 216-18°). The
reaction of I with KCN in EtOH did not result in the formation of an indolyl-
succinic acid monoitrile, as in the case of 3-indolylmethylidenemalonic acid
ester unsubstituted in the pyrrole ring (cf. A. Kalir and S. Szara, J. Med.
Chem., 9, 793, 1966), but yielded the monoamide of (1-benzyl-3-indolyl)
succinic acid (II; m. 140-1°), which presumably formed by hydrolysis of the
corresponding mononitrile. The presence of a carboxy group in II was con-
version of II into the monoethylester that formed the hydrazide of II (m. 205-
6°) upon reacting with hydrazine hydrate.
1/1

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1/2   026   UNCLASSIFIED   PROCESSING DATE--16OCT70
TITLE--RESULTS OF A SPECTRAL ANALYSIS OF THE ELECTROENCEPHALOGRAM DURING
  SLEEP AND WAKEFULNESS -U-
AUTHOR-(03)-ONIANI, T.N., MOLNAR, P.P., BADRIDZE, I.K.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK GRUZINSKOI SSR, SOOBSHCHENIIA, VOL. 57, JAN. 1970,
  P. 173-176
DATE PUBLISHED----JAN70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ELECTROENCEPHALOGRAPHY, SLEEP, ELECTROPHYSIOLOGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0210   STEP NO--UR/0251/70/057/000/0173/0176

CIRC ACCESSION NO--AP0119206
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0119206

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   INVESTIGATION, BY SPECTRAL
ANALYSIS AND INTEGRATION OF ELECTROENCEPHALOGRAMS OF CATS WITH
PERMANENTLY IMPLANTED ELECTRODES, OBTAINED DURING VARIOUS PHASES OF THE
SLEEP WAKEFULNESS CYCLE.   GRAPHS SHOWING THE ELECTRICAL ACTIVITY OF THE
AUDITORY AND VISUAL PORTIONS OF THE NEOCORTEX AND THE DORSAL HIPPOCAMPUS
OF A SLEEPING CAT AND THE CHANGES IN THIS ACTIVITY DUE TO ELECTRIC
STIMULATION OF THE RETICULAR FORMATION OF THE MIDBRAIN INDICATE THAT
SLOW HIGH AMPLITUDE OSCILLATIONS PREVAIL IN ALL THESE STRUCTURES PRIOR
TO STIMULATION.   DELTA, THETA, AND ALPHA RYTHMS DOMINATE IN THE AUDITORY
REGION OF THE NEOCORTEX DURING SLEEP.   THRESHOLD EXCITATION OF THE
RETICULAR FORMATION LEADS TO SUBSTANTIAL CHANGES IN THE ELECTRICAL
ACTIVITY OF THE NEOCORTEX, WHICH MANIFEST THEMSELVES IN A PRONOUNCED
INHIBITION OF THE DELTA, THETA, AND ALPHA RHYTHMS.   THESE RHYTHMS ARE
ALSO INHIBITED IN THE HIPPOCAMPUS, BUT TO A LESSER DEGREE.
FACILITY: AKADEMIIA NAUK GRUZINSKOI SSR, INSTITUT FIZIOLOGII, TIFLIS
GEORGIAN SSR.

UNCLASSIFIED

USSR   UDC 591.1 + 612-019

ONIANI, T. N. (Corresponding Member, Academy of Sciences Georgian
SSR), MOL'NAR, P. P., and BADRIDZE, I. K., Institute of Physiology,
Academy of Sciences, Georgian SSR

"Results of Spectral Analysis of Electroencephalogram During Sleep
and Wakefulness"

Abstract: Different cortical rhythms recorded with the use of chroni-
cally implanted electrodes in several phases of the sleep waking
cycle were investigated by the method of spectral analysis and integra-
tion. During spontaneous as well as evoked arousal (by means of
alimentary conditioned signal or by electrical stimulation of the
reticular formation), high voltage slow waves (delta, theta, and
alpha) were inhibited in different neocortical territories, and for
a short period in the hippocampus as well. In place of the generally
reported increase of the low-voltage fast activity components (β_1
and β_2), a decrease in these rhythms was found.

1/1

USSR

UDC: 681.337

SMIRNOV, B. S., BADU, Ye. I.

"A Device for Automatic Scale Changing in Analog Computers"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 46, Dec 73, Author's Certificate No 407327, Division G, filed 21 Feb 72, published 21 Nov 73, p 163

Translation: This Author's Certificate introduces a device for automatic scale changing in analog computers based on Author's Certificate No 228342. As a distinguishing feature of the patent, operating accuracy is improved by adding a unit for a variable subrange expansion coefficient containing a product unit whose inputs are connected to a source of the first and second derivative of the variable to be scaled. The output of the product unit is connected to the inputs of zone discriminators. Connected to the output of each of the zone discriminators is an actuating element such as a relay whose normally open contacts are connected in the corresponding circuit of the module for setting and resetting initial conditions.

1/1

USSR

UDC 632.95

BADULIN, A. V., Chief of the Division of Plant Protection, Volga Scientific
Research Institute of Irrigation Agriculture; BURDALAYEVA, T. S., All-Union
Scientific Research Institute of Reclamative Afforestation; POPOV, N. A.,
Chief of the Laboratory of Chemico-Biological Control, Volgograd Disinfection
Station; and PONOMARENKO, V. F.

"Studies on Applications of Dibrom"

Abstract: Organophosphorus compounds, although highly toxic with respect
to their action as insecticides and acaricides, are relatively safe as far as
contamination of the environment and accumulation in food products are con-
cerned. The applications of dibrom, which decomposes rapidly and hence
does not present any serious danger to the health of human beings, were
studied for these reasons. Dibrom is available in the form of a 50% emulsion
containing OP-10 as the emulsifier. To test the effectiveness of dibrom
against household insects (the common cockroach, bedbugs, and various species
of flies including the house, bluebottle, greenbottle, blow, and flesh
flies), the insects were placed in contact with a plywood sheet treated with
a dibrom emulsion in the amount of 100 g/m^2. After a 15 min contact with
the plywood sheet, the still living insects were removed and observed.
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USSR

Dibrom in a concentration of 0.5-1% killed cockroaches in 3-72 hrs, producing an irreversible paralysis in 1 hr. In a concentration of 0.25-0.5% dibrom killed bedbugs in 3-24 hrs and produced paralysis in 10-15 min. In a concentration of 0.5-0.1% /0.5-1% / it killed all flies in 3-5 min. The surface treated with dibrom remained effective against cockroaches and bedbugs for a period up to 24 hrs and against flies for a period up to 3-4 days. Bait poisoned with 0.25-0.5% dibrom was effective against cockroaches. On being sprayed on plants infested with the insect pests, an 0.15% emulsion of dibrom killed all pea and rose aphids and an 0.1% emulsion all larvae of the fig cicada and of the rose sawfly within 4-5 hrs. An irreversible paralysis was produced within the first few minutes of contact of these insects with dibrom. Larvae of the elm leaf beetle were resistant to dibrom. Dibrom in a concentration of 0.2% was effective against larvae of the fox-colored sawfly. The dibrom emulsions did not burn the plants and preserved their toxicity for 35 days (the time during which observations were carried out) on being kept at 20-23° after preparation.

2/2

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USSR

UDC 614.73

ALFEROV, M. V., BADIN, V. L., and BATOVA, Z. G.

"The Radiation Significance of Internal Irradiation Caused by Uranium of Plutonium Fission"

Moscow, Gigiyena i Sanitariya, No 5, 1970, pp 112-113

Abstract: The possibility of transferring research workers, handling uranium or plutonium isotopes to operations entailing exposure to neutron fields was examined. The issue is the additional internal irradiation created by fragments formed during the fission of the uranium or plutonium isotopes. Calculations show that from the standpoint of radiation safety, no additional restrictions need be placed on such personnel if the exposure to neutron radiation is at the maximum permissible level. If the neutron flux reaches values above this level, the conditions of radiation safety will be determined by the injurious effect of the neutron flux itself, the internal dose of alpha irradiation, and, if the neutron fields are sufficiently large, by the dose of fission fragments.

1/1

USSR   UDC 616-099-612.014.46

TITOVA, N. N. and BADYUGIN, I. S., Chair of Labor Hygiene and
Occupational Diseases Kazan Medical Institute of the Order to Labor
Red Banner imeni S. V. Kuroshov

"Acute Intoxication with Chlorophos (Dipterex)"

Kazan', Kazanskiy Meditsinskiy Zhurnal, No 1, Jan/Feb 70, pp 37-40

Abstract: Chlorophos is a toxic agent whether inhaled, taken orally,
or absorbed through skin. Only initial symptoms are different, de-
pending on the route of entry. Most of the symptoms are suggestive
of cholinergic pathology. Chlorosphos may circulate in blood for
up to five days, and is excreted from the body for 10-15 days, so
purging of the gastrointestinal tract, dialysis, blood transfusions,
and forceddiuresis should be maintained for several days. Since in
basic medium chlorophos converts to toxic dimethyl-2,2-dichlorovinyl
phosphate, acidic oxidative agents should be used as a rule. The
following agents are recommended for treatment of chlorophos poison-
ing: IV injections of dipyroxime solution and purified cholinesterase,
atropine injections every 20-30 min to the point of overatropiniza-
1/2

USSR

SYCHEVA, S. P., et al., Moscow, Doklady Akademii Nauk SSSR,   Vol 191,
No 1, 1970, pp 240-243

In the Hill reaction, MNP is entirely negative in non-cyclic phos-
phorylation, weak in cyclic phosphorylation and somewhat active in
pseudocyclic phosphorylation. Generally the Hill reaction is more
sensitive in the presence of phosphate acceptors, which necessitates
further study.

2/2

Steels

USSR   UDC 539.67

TAVADZE, F. N., ZOIDZE, N. A., BADZOSHVILI, V. I., METREVELI, V. SH., and
GARIBASHVILI, V. I.

"The Effect of Boron on the Internal Friction and Mechanical Properties of
CONGVR Steel"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction
in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 132-134

Abstract: It is shown that the addition of boron to OONGVR steel leads to an
increase in strength, and reinforces the effect of heat treatment on "heredity."
In samples containing boron, a preliminary deformation at room temperature
increases the strength and yield stress after the $\alpha - \gamma - \alpha$ transformations.
        It is assumed that an increase in mechanical properties is related to the
effect of boron on the formation of steel substructure. Certain recommenda-
tions are given on the practical use of boron for strengthening the effect of
heat treatment on the "heredity" of alloyed steels. 2 figures.

1/1

USSR

UDC 547.792.3:541.127.1

PEVZNER, M. S., SAMARENKO, V. YA., and BAGAL, L. I., Leningrad Technological
Institute imeni Lensovet, Leningrad

"Heterocyclic Nitro Compounds. XV. Kinetics of the Reaction of 1-Methyl-3-
nitro-5-halo-1,2,4-triazoles with Hydroxyl Anions"

Abstract: The kinetics of the reaction of 1-methyl-3-nitro-5-chloro- and 1-
methyl-3-nitro-5-bromo-1,2,4-triazole with hydroxyl ions were studied. The
reactivity of the substituents increased from NO_2 to Cl and Br, both of which
reacted at approximately the same rate. The ratio of the rate constant of
substitution of the halogen atom to that of the NO_2 group was equal to 30:1.

1/1

1/2   021   UNCLASSIFIED   PROCESSING DATE--13NOV70
TITLE--SYNTHESIS AND STRUCTURE OF SOME DIAZONIUM SALTS OF THE
   1,2,4,TRIAZOLE SERIES -U-
AUTHOR-(05)-FROLOV, A.N., PEVZNER, M.S., SHOKHOR, I.N., GALKOVSKAYA, A.G.,
   BAGAL, L.I.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (5), 705-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANIC SYNTHESIS, MOLECULAR STRUCTURE, DIAZONIUM SALT,
   ORGANIC AZOLE COMPOUND, PERCHLORATE, NITRATE, CARBOXYL RADICAL,
   ELECTRONEGATIVITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1028   STEP NO--UR/0409/70/000/005/0705/0709

CIRC ACCESSION NO--AP0134740
                            UNCLASSIFIED

CIRC ACCESSION NO--AP0134740   UNCLASSIFIED   PROCESSING DATE--13NOV70
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   ME
3,DIAZO,1,2,4,TRIAZOLE,5,CARBOXYLATE,
3,DIAZONIUM,5,PHENYL,1,2,4,TRIAZOLE FLUOBORATE, PERCHLORATE, AND
NITRATE, 3,DIAZONIUM,5,(P,NITROPHENYL),1,2,4,TRIAZOLE, AND THE M,NITRO
ANALOG WERE PREPD.   THE H ON THE N ATOM IN
3,DIAZONIUM,5,CARBOXY,1,2,4,TRIAZOLE WAS MORE ACIDIC THAN THE ONE IN THE
CARBOXYL GROUP.   THE STRUCTURE OF A CRYST. DIAZONIUM SALT OF THE
TRIAZOLE SERIES DEPENDED ON THE ELECTRONEGATIVITY OF THE SUBSTITUENT IN
POSITION 5 OF THE RING.   FACILITY: LENINGRAD. TEKHNOL. INST. IM.
LENSOVETA, LENINGRAD, USSR.

UNCLASSIFIED

111383h Heterocyclic nitro compounds. I. Synthesis of
nitro derivatives of 1,2,4-triazole, 1,3,4-thiadiazole, tetrazole,
1,3,4-oxadiazole and pyrazole by the noncatalytic substitution
of a diazo group for a nitro group. Bagal, L. I.; Pevzner, M. S.;
Frolov, A. N.; Sheludyakova, N. I. (Leningrad. Tekhnol. Inst.
im. Lensoveta, Leningrad, USSR). Khim. Geterotsikl. Soedin.
1970, (2), 259-64 (Russ). Treating 1.68 g 3-amino-1,2,4-tri-
azole in AcOH with 1.6 g NaNO$_2$ in 7 ml concd. H$_2$SO$_4$ at −5 to 0°
5 min., followed by diln., <0°, and addn. of the soln. to 200 ml
10% NaNO$_2$ at 45–50°, and the mixt. heated 1 hr at 45° gave
57% 3-nitro-1,2,4-triazole, m. 210°. Alternatively, the amino-
triazole in 10% H$_2$SO$_4$ was added to 10% NaNO$_2$ at 45°. Simi-
larly were prepd. the following 5-substituted derivs. (5-sub-
stituent shown): Me, m. 194°; Et, m. 121°; Pr, m. 92°; Ph,
m. 222–3°; p-O$_2$NC$_6$H$_4$, m. 274–5°; m-isomer, m. 189°; CO$_2$H,
m. 102°; CO$_2$Me, m. 134°; also the following 3-nitro-2-methyl-
5-(R-substituted)-1,2,4-triazoles: H, m. 83°; CO$_2$H, m. 166°;
and 3-nitro-4-methyl-1,2,4-triazole, m. 100°. Similar reaction
with 3,5-diamino-1,2,4-triazole and NaNO$_2$ in aq. H$_2$SO$_4$ gave
80% 3,5-dinitro-1,2,4-triazole, m. 135°, which was very hygro-
scopic. The following were prepd. similarly: 1-methyl-5-nitro-
tetrazole, m. 55–6°; and the 2-Me analog, m. 86–7°. A suspen-
sion of 2.1 g. 2-amino-5-methyl-1,3,4-oxadiazole in 20% Na-
NO$_2$ at −5° treated over 3 hr with 100 ml 7% H$_2$SO$_4$ at <0°,

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AP0100367

gave 25% 2-nitro-5-methyl-1,3,4-oxadiazole, m. 75°. For this prepn. it was essential to shorten the contact with acids, as 1,3,4-oxadiazoles are unstable in acids. The following I were reported (n shown): 0, m. 256-7°; 1, m. 280-2°; and 2, m. 260-1°. Although 2-aminoimidazole and 2-aminopyridine failed to yield nitro derivs. by this method owing to instability of the diazonium
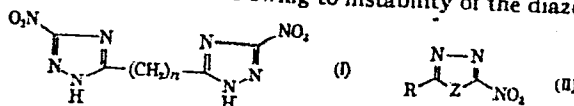
forms, the results confirmed the previously suggested mechanism for the introduction of the NO_2 group. (B., et al., 1969). The following II were similarly prepd. (Z and R shown): S, H, m. 82°; S, Me, m. 62°; S, Ph, m. 141°; S, o-$O_2NC_6H_4$, m. 131°; S, p-$O_2NC_6H_4$, m. 179°; O, Me, m. 75°; and CH_2, H, m. 175°. The yields were 25-76%.

G. M. Kosolapoff

19841790

UNCLASSIFIED   PROCESSING DATE--17JUL70

TITLE--HETEROCYCLIC NITRO COMPOUNDS. II. ALKYLATION OF NITRO DERIVATIVES
   OF 1,2,4,TRIAZOLE -U-

AUTHOR-=BAGAL, L.I., PEVZNER, M.S., SHELUDYAKOVA, N.I., KERUSOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 265-8

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, ALKYLATION, ORGANIC AZOLE
   COMPOUND, ORGANIC SULFUR COMPOUND, SULFATE, METHOXY COMPOUND, AROMATIC
   NITRO COMPOUND, THIN LAYER CHROMATOGRAPHY, CHROMATOGRAPHIC SEPARATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1984/1793   STEP NO--UR/0409/70/000/002/0265/0268

CIRC ACCESSION NO--AP0100369
                 UNCLASSIFIED

111384j Heterocyclic nitro compounds. II. Alkylation of nitro derivatives of 1,2,4-triazole. Bagal, L. I.; Pevzner, M. S.; Sheludyakova, N. I.; Kerusov, V. M. (Leningrad. Tekh-nol. Inst. im. Lensoveta, Leningrad, USSR). Khim. Geterotsikl. Soedin. 1970, (2), 265–8 (Russ). Methylation of 3-nitro-1,2,4-triazole (I) and its analogs with Me_2SO_4 in alkali occurs at the 1-position, while CH_2N_2 gave mixed products with Me in the 1- and 2-positions. I (2 g) in Me_2CO treated with 6 ml 10% NaOH and 2.2 g Me_2SO_4 and the mixt. kept 8 hr gave 66% 1-Me deriv. (II) of I, m. 63–4°. Similarly prepd. was the 1,5-di-Me deriv. (III) of I, 55%, m. 89–90°, while the 5-carbomethoxy deriv. of I gave its 1-Me deriv., 51%, m. 120–1°. Treating, in dioxane, the appropriate I analog with 50% excess CH_2N_2 in Et_2O gave: from I, 76% II and 24% 1-methyl-5-nitro-1,2,4-triazole; from the 5-Me deriv. of I, 64% III and 36% 1,3-dimethyl-5-nitro-1,2,4-triazole. No N^4-substitution was found. Adding 6.5 g 1,3-dimethyl-5-amino-1,2,4-triazole-H_2SO_4 in 5% H_2SO_4 at 0° to 30 g $NaNO_2$ in H_2O and keeping the mixt. 0.5 hr gave 52% 1,3-dimethyl-5-nitro-1,2,4-triazole, m. 55–6°; similarly was prepd. 3-nitro-4,5-dimethyl-1,2,4-triazole, m. 66–7°. CH_2N_2 and 1-

½

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methyl-3-carboxy-5-nitro-1,2,4-triazole gave 69% Me ester, m. 84°. The 1-methyl-5-carbomethoxy deriv. of I heated with 15% H_2SO_4 12 hr gave 67% II. 3,5-Dinitro-1,2,4-triazole converted to its Na salt and this treated with Me_2SO_4 in Me_2CO gave 64% 1-Me deriv., m. 96–7°, also formed exclusively from the Ag salt and MeI in the dark in MeCN, or from the dinitrotriazole and CH_2N_2 in Et_2O, or finally from 1-methyl-3,5-diamino-1,2,4-triazole-H_2SO_4 heated with aq. $NaNO_2$ and $Cu(NO_3)_2$ 2 hr at 50–60°. The mixed triazoles were readily sepd. by thin layer chromatog. on Al_2O_3.   G. M. Kosolapoff

19841794

AP0100368

CHEMICAL ABST

111380e Heterocyclic nitro compounds. III. Interaction of nitro derivatives of 1,2,4-triazole with aliphatic amines. Bagal, L. I.; Pevzner, M. S.; Samarenko, V. Ya. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). *Khim. Geterotsikl. Soedin.* 1970, (2), 269-74 (Russ). 1-Methyl-3,5-dinitro-1,2,4-triazole (I) reacts with aliphatic amines by replacement of the NO_2 group in the 5-position by the amine residue. I (4 g) heated with 100 ml 25% NH_4OH in an autoclave 4 hr at 70-80° gave 5-amino-1-methyl-3-nitro-1,2,4-triazole (II), m. 254-6°; *N*-Ac deriv. m. 172-3°. II treated with 10% H_2SO_4 at 0°, followed by aq. $NaNO_2$ gave 1-methyl-3-nitro-5-nitrosamino-1,2,4-triazole, m. 78°. To 70 ml concd. H_2SO_4 was added at 0° 3 g $NaNO_2$ followed by 29 g NaH_2PO_2 in 50 ml 30% H_2SO_4, and 3 g II in 200 ml AcOH, and the mixt. held 1 day at 0° to yield 22% 1-methyl-3-nitro-1,2,4-triazole, m. 62-3°. I in dioxane heated with 20% aq. $MeNH_2$ 1 hr at 80° gave 1-methyl-3-nitro-5-methylamino-1,2,4-triazole (III), m. 207-8°; similarly were prepd. the following analogs (5-amino groups shown): $CH_2:CHNH$, m. 68-9°; Me_2N, m. 109°; Et_2N, m. 47.5-8°; aziridino, m. 114-15°; and piperidino, m. 120-1.5°. Hydrogenation of III in EtOH over Pd-C gave 1-methyl-5-methylamino-3-amino-1,2,4-triazole (IV).

REEL/FRAME
19841791

AP0100368

m. 170°; similarly was prepd. the 5-dimethylamino analog, m. 136.5°. IV and NaH$_2$PO$_2$ treated with aq. HCl and NaNO$_2$ overnight gave 1-methyl-5-methylamino-1,2,4-triazole, isolated as the picrate, m. 211–12°, also formed from 1-methyl-5-nitro-1,2,4-triazole and aq. MeNH$_2$ in aq. dioxane in 10 hr at 75°; similarly was prepd. 1-methyl-5-dimethylamino-1,2,4-triazole (V) picrate, m. 152–3°. Heating Me$_2$NCSNH$_2$ in EtOH with MeI 2 hr, gave 89% Me$_2$NC(NH$_2$):SMe.I, m. 97–8°, which heated 16 hr in EtOH with MeNHNH$_2$ gave 1,1,3-trimethyl-3-amino-guanidine·HI, which with 88% HCO$_2$H heated 40 hr at 110° gave 79% V, isolated as the picrate. Holding 1-methyl-3-nitro-5-aziridino-1,2,4-triazole with concd. HCl in dioxane 1 hr. gave 1-methyl-3-nitro-5-(2-chloroethylamino)-1,2,4-triazole, m. 130°. Heating I with Et$_3$N in aq. dioxane 4 hr gave 1-methyl-3-nitro-1,2,4-triazol-5-one, decompd. 229°, also obtained from the aq. filtrate in the prepn. of II after treatment with 5% H$_2$SO$_4$. The purification of the products was best done on a thin layer of Al$_2$O$_3$.

G. M. Kosolapoff

19841792

Acc. Nr. *N0053772*   Abstracting Service: Ref. Code
                        CHEMICAL ABST.   UR 0366

110924y Anions of dinitromethyl compounds. XV. Synthesis of aryldinitromethanes by the nitration of arylaldoximes with nitrogen pentoxide. Kolesetskaya, G. I.; Tselinskii, I. V.; Bagal, L. I. (Leningrad. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR). Zh. Org. Khim. 1970, 6(2), 334–40 (Russ). The reaction of RCH:NOH (I) [R is 2-ClC$_6$H$_4$; 3-ClC$_6$H$_4$; 4-ClC$_6$H$_4$; 2-BrC$_6$H$_4$; 3-BrC$_6$H$_4$; 4-BrC$_6$H$_4$; 2-MeC$_6$H$_4$; 3-MeC$_6$H$_4$; 4-MeC$_6$H$_4$; 2-MeOC$_6$H$_4$; 3-MeOC$_6$H$_4$; 4-MeOC$_6$H$_4$; 3-NCC$_6$H$_4$; 4-NCC$_6$H$_4$; 2-FC$_6$H$_4$; 4-FC$_6$H$_4$; 2-O$_2$NC$_6$H$_4$; 3-O$_2$NC$_6$H$_4$; 4-O$_2$NC$_6$H$_4$; 5,2-Cl(O$_2$N)C$_6$H$_3$; 2,5-Cl(O$_2$N)C$_6$H$_3$; 5,2-Br(O$_2$N)C$_6$H$_3$; 4,3-Br(O$_2$N)C$_6$H$_3$; 3,4-Br(MeOC$_6$H$_3$); 3,4-O$_2$N(MeO)C$_6$H$_3$; 2,5-MeO(O$_2$N)C$_6$H$_3$; 2,4-Cl$_2$C$_6$H$_3$; 2,4-Me$_2$C$_6$H$_3$; 2,4,5-Me$_2$(O$_2$N)C$_6$H$_2$; 2,4,3,5-Me$_2$(O$_2$N)C$_6$H; 2,4,5-(O$_2$N)$_2$(MeO)C$_6$H$_2$; 2,3,5-MeO(O$_2$N)$_2$C$_6$H; 3,5,4-(O$_2$N)$_2$(MeO)C$_6$H$_2$ with N$_2$O$_5$] gave RCH(NO$_2$)$_2$ (II) and RCHO. The yields of II depend on the position of the substituents: o-substituted I gave 20–30% II, other I give 45–60% II. Nitration of I (R = 4-Me$_2$NC$_6$H$_4$) gave 4,3,5-Me$_2$N(O$_2$N)$_3$C$_6$H$_2$CH(NO$_2$)$_2$. II give salts, such as RCK(NO$_2$)$_2$, which react with halogens to give RC(NO$_2$)$_2$X (X is Cl or Br). Also I react with CH$_2$:CHAc to give RC(NO$_2$)$_2$CH$_2$CH$_2$Ac.   CPJR

REEL/FRAME
19830835

TITLE--ISOMERS OF 1,3,5,TRINITRO,1,3,5,TRIMETHYLCYCLOHEXANE -U-

AUTHOR-(03)-GEORGIYEVSKAYA, G.D., BAGAL, L.I., BOLDYREV, M.D.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 731-2

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ISOMER, NITROBENZENE, SODIUM COMPOUND, BORON HYDRIDE, COMPLEX
  COMPOUND, CYCLOHEXANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1951   STEP NO--UR/0366/70/006/004/0731/0732

CIRC ACCESSION NO--AP0125540
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0125540
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE REDN. OF 1,3,5,
   TRINITROBENZENE WITH NABH SUB4 A COMPLEX IS FORMED (L. I. BAGAL, ET AL.,
   1969) WHICH REACTS WITH HCHO GIVING 2 ISOMERS OF THE TITLE COMPD. M.
   180-1DEGREES (DECOMPN.) AND 190-200DEGREES (DECOMPN.).   IT IS THOUGHT
   THAT 1 OF THE ISOMERS HAS TRIEQUATORIAL OR TRIAXIAL CONFORMATION AND THE
   OTHER DIEQUATORIAL AXIAL OR DIAXIAL EQUATORIAL CONFORMATION.
   FAICLITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETS, LENINGRAD, USSR.

UNCLASSIFIED

TITLE--HYDROLYSIS OF DINITROACETONITRILE IN SULFURIC ACID -U-

AUTHOR-(04)-MINTS, YE.S., TESLER, R.S., GCLUO, YE.L., BAGAL, L.I.

COUNTRY OF INFO--USSR

SOURCE--ZH. ORG. KHIM. 1970, 6(4), 698-701

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TCPIC TAGS--HYDROLYSIS, ORGANIC NITRILE COMPOUND, SULFURIC ACID, CHEMICAL
   REACTION KINETICS, ACTIVATION ENERGY, CHEMICAL REACTION MECHANISM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/2177   STEP NO--UR/0366/70/006/004/0698/0701

CIRC ACCESSION NO--AP0125757

CIRC ACCESSICN NO--AP0125757
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF (O SUB2 N) SUB2
   CHCN (I) HYDROLYSIS WITH 85.3-99.0PERCENT H SUB2 SO SUB4 WERE STUDIED IN
   THE TEMP. RANGE 5.8-25DEGREES. THE REACTION IS BIMOL. AND ITS
   ACTIVATICN ENERGY DECREASED WITH THE INCREASE OF H SUB2 SO SUB4 CONCN.
   A MECHANISM IS PROPOSED.   FACILITY: LENINGRAD. TEKHNOL. INST.
   IM. LENSCVETA, LENINGRAD, USSR.

UNCLASSIFIED

TITLE--HETEROCYCLIC NITRO COMPOUNDS. V. 1,METHYL,3,NITRO,5,ALKOXY AND
   PHENOXY,1,2,4,TRIAZOLES -U-
AUTHOR-(04)-BAGAL, L.I., PEVZNER, M.S., SAMARENKO, V.YA., YEGOROV, A.P.

COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSKIKL. SOEDIN. 1970, (5), 702-4

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HETEROCYCLIC NITROGEN COMPOUND, ORGANIC NITRO COMPOUND,
   ORGANIC AZOLE COMPOUND, KETONE, ORGANIC SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1027   STEP NO--UR/0409/70/000/005/0702/0704

CIRC ACCESSION NO--AP0134739
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0134739
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ET SUB3 N (1.6 ML) WAS ADDED TO 2
G 1,METHYL,3,5,DINITRO,1,2,4,TRIAZOLE (I) IN 50 ML MEOH AT 50DEGREES AND
THE MIXT. HEATED 2 HR AT 60-70DEGREES TO GIVE 71PERCENT
1,METHYL,3,NITRO,5,ALKOXY,1,2,4,TRIAZOLE (II) (ALKYL EQUALS ME) (III),
M. 146DEGREES (ETOH). SIMILARLY, II (ALKYL EQUALS ET AND PR), M.
75DEGREES (ETOH), AND 38DEGREES (PETROLEUM ETHER), RESP., WERE PREPD. I
(2 G) IN 15 ML DIOXANE AND 3 ML H SUB2 O AND 1.09 G PHOH IN 4 ML DIOXANE
WAS HEATED 3 HR AT 65-70DEGREES TO GIVE 51PERCENT II (ALKYL EQUALS PH),
M. 124.5DEGREES (CCL SUB4 PETROLEUM ETHER). SIMILARLY, 72PERCENT II
(ALKYL EQUALS M AND P,J SUB2 NC SUB6 H SUB4), M. 154.5DEGREES AND
173DEGREES (BOTH FROM C SUB2 H SUB4 CL SUB2 ET SUB2 O), RESP., WERE
PREPD. III TREATED WITH HBR IN ACOH GAVE 25PERCENT
1,METHYL,3,BROMO,1,2,4,TRIAZOL,5,ONE, M. 225DEGREES (C SUB2 H SUB4 CL
SUB2).   FACILITY: LENINGRAD. TEKHNOL. INST. IM. LENSOVETA,
LENINGRAD, USSR.

UNCLASSIFIED

USSR   UDC 621.317.4:621.318.12

ARTEMOVA, M. A., BAGALEY, O. Yu., GROBOVITSKIY, M. I., ZINGERMAN, V. I.

"Installation for Determination of Static Magnetic Characteristics of Specimens of Magnetically Hard Materials"

ABSTRACT: A description is presented of a new installation, designed for certification testing of specimens of magnetically hard materials. It allows determination of demagnetization curves of specimens consisting of rectangular parallelepipeds with cross sections of 0.5 to 9 cm^2, from 15 to 100 mm in length. The coercive force of the specimens tested should be not over 200 ka/m (for 15 mm specimens) or 80 ka/m (for 100 mm specimens). The design and construction of the new installation eliminate the preliminary calibration operations, the system itself being suitable as a standard source for certification of standard specimens. The installation uses a measurement method allowing the advantages of pulse magnetization and induction measurement of magnetic induction to be combined. A photograph is presented of the device, plus a description of its primary characteristics.

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BagamaDova, A.M.

- 64 -

V-13.   EPITAXIAL FILMS OF ZINC OXIDE ON SAPPHIRE AND OTHER SUBSTRATES

[Article by S. A. Smelitsov, R. A. Rabadanov, A. M. Bagamadova, Moscow; Novosibirsk, III Simposium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 64]

In the report results were presented which were obtained when studying the initial growth stages, the micro…morphology and the defect structure of monocrystalline films of zinc oxide on mica, sapphire, germanium and gallium arsenide. The films were grown by the method of chemical transport using the following reaction:

$$Zn + H_2 = ZnO + H_2O$$
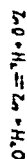
The measurements of the electrical conductivity and the Hall effect and their temperature dependence permitted us to obtain information about the concentration of excess zinc atoms in the ZnO film and its dependence on the film orientation and growth rate.

In sufficiently thick layers (> 10 microns), the Hall mobility of the electrons is 140-180 cm²/volt-sec, and the concentration is 2-4·10¹⁸ cm⁻³ (for 300°K).

TITLE--THE HEAT CAPACITY OF SOLID CF SUB4 -U-

AUTHOR--BAGATSKIY, M.I., MANZHELIY, V.G., POPOV, V.A.

COUNTRY OF INFO--USSR

SOURCE--PHYSICA STATUS SOLIDI, 1970, VOL 37, NR 1, PP 65-72

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--HEAT CAPACITY, CRYSTAL STRUCTURE, MOLECULAR STRUCTURE,
   FLUORINATED ORGANIC COMPOUND, METHANE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0635   STEP NO--GE/0030/70/037/001/0065/0072

CIRC ACCESSION NO--AP0107232
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0107232
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT CAPACITY OF SOLID
TETRAFLUOROMETHANE HAS BEEN MEASURED IN THE TEMPERATURE RANGE 2 TO
20DEGREESK. THE ANALYSIS OF THE RESULTS OF THIS PAPER AND LITERATURE
DATA ON THE HEAT CAPACITY ALLOW TO MAKE CONCLUSIONS ABOUT THE CHARACTER
OF THE HEAT MOTION OF THE MOLECULES IN CRYSTALLINE CF SUB4. AN "EXTRA"
HEAT CAPACITY OF CF SUB4 NEAR THE PHASE TRANSFORMATION TEMPERATURE
TAULAMBDA EQUALS 76.09DEGREESK IS DUE TO ORIENTATIONAL DISORDERING. THE
TEMPERATURE DEPENDENCE OF THE "EXTRA" HEAT CAPACITY DELTAC SUBOR IS WELL
DESCRIBED BY THE LOGARITHMIC FUNCTION DELTAC SUBOR SIMILAR TO LG (L
MINUS TAU) TAULAMBDA).

UNCLASSIFIED

USSR   UDC 539.192/.194+535.33/.34.01

BOCHVAR, D. A., BAGATUR'YANTS, A. A., BORISOV, YE. V.

"Study of π-Electron Structure of Substituted Sidnons and Sidncnimins by the Huckel Method With Parameters Obtained From the Pariser-Parr-Popl Method"

Izucheniye π-elektronnogo stroyeniya zameshchennykh sidnonov i sidnoniminov po metodu Khyukkelya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla (cf. English above), Editorial Collegium of Zhurnal fizicheskoy khimii, Academy of Sciences USSR, Moscow, 1971, 17 pp, ill., 14 references, Deposition No 2523-71 (from RZh-Fizika, No 5, May 71, Abstract No 5D113)

Translation: Twenty-three molecules of substituted sidnons and sidnonimins were calculated by the simple Huckels method. Two sets of Coulomb and resonance integrals were used that were calculated from the corresponding matrix elements of the Pariser-Parr-Popl method. Molecular diagrams and energy characteristics of the molecules calculated are given. The properties of sidnons and sidnonimins of both substitutes and conductors of electron effects are discussed, and the effects of redistribution of electron density in the heterering under the effect of substitutes R, R', R" are discussed. It is shown that the effect of substitutes has a stronger

1/2

USSR

BOCHVAR, D. A., et al, Izucheniye π-elektronnogo stroyeniya zameshchennykh sidnonov i sidnoniminov po metodu Khyukkelya s parametrami, poluchennymi iz metoda Parizera-Parra-Popla

effect on the charges of N_2- and C_4- atoms. It was found that sidnons and sidnonimins, in accordance with the data from analysis of the physicochemical properties and reaction capacities of these molecules, are weak conductors of π-electron effects from the third and fourth positions of the ring into the fifth and sixth positions.

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USSR

UDC 669.71.053.4.094

MAL'TS, N. S., BERNSHTEYN, V. A., MEDVEDEV, V. V., BAGAYEV, A. S.

"Thermotechnical Studies on an Experimental Device for High-Temperature Leaching of Bauxites"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research And Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 70, pp 109-119 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G141)

Translation: Results are presented from studies of the kinetics of incrustation of the heat-exchange surface and the heat-exchange conditions during the process of heating of bauxite pulp in the experimental device for high-tempera- ture leaching of bauxites. The nature of incrustation of the heat-exchange surface in a broad temperature range of heating of bauxite pulp and also the effect of individual factors on this process are determined. There are 4 illustrations and 1 table.

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- 4 -

BAGAYEV A. V

- 485 -

TECHNICAL TRANSLATION

FSTC-HT-23-2015-72

ENGLISH TITLE: PROBLEMS OF LASER BEAM DATA TRANSMISSION PROCEEDINGS OF THE FIRST ALL-UNION CONFERENCE, KIEV, SEPTEMBER 1968

FOREIGN TITLE: PROBLEMY PEREDACHI INFORMATSII LAZERNYM IZLUCHENIEM

AUTHOR: I. A. DERYUGIN, ET AL.

SOURCE: KIEV ORDER OF LENIN STATE UNIVERSITY IMENI T.G. SCHEVCHENKO

Translated for FSTC by ACSI

NOTICE

B.   Methods of Combinatory Analysis in Other Fields
of Science.   Graph Theory

USSR

BAGAYEV, G. N.

"Random Graphs with Degree of Connectedness 2"

Diskretn. Analiz. [Discrete Analysis -- Collection of Works], No 22,
Novosibirsk, 1973, pp 3-14 (Translated from Referativnyy Zhurnal Kiber-
netika, No 10, 1973, Abstract No 10V349)

Translation: The number of all graphs connected without parallel lines
and without loops within marked points and n + 1 lines is calculated,
and the probability distribution of the number of points belonging to
cycles in graph S_n, selected at random from the set of graphs studied,
the distribution of distances between cycles in graph S_n and the regular
threshold functions and threshold functions of the distribution for the
appearance of randomly placed points in the cycles of graph S_n are cal-
culated.

Author's view

1/1

USSR

BAGAYEV, G. N.

"One Distribution in a Random Tree"

Diskretn. analiz [Discrete Analysis -- Collection of Works], No 21, Novosibirsk, 1972, pp 3-9 (Translated from Referativnyy Zhurnal - Kibernetika, No 8, 1973, Abstract No 8 V354 by V. Leont'yev)

Translation: The problem of distribution of random quantity $\eta(1)$, equal to the number of points in a random-point tree from which 1 lines are removed in a random manner and which contains fixed point v, is studied.

Theorem 1. The probability that random quantity $\eta(1)=k$ is

$$P\{\eta(l) = k\} =$$

$$= \frac{l}{(n-l)n^{n-l-1}} \binom{n-l}{k} k^k (n-k)^{n-k-l-1} \quad (k=1, \ldots, n-l).$$

1/2

USSR

BAGAYEV, G. N., Diskretn. analiz., No 21, Novosibirsk, 1972, pp 3-9

Local and integral theorems of convergence of the distribution of the random quantity $n(1)$ with various values of parameter 1 as $n \to \infty$ are also proven.

2/2

USSR   UDC 519.281

BAGAYEV, G. N.

"Asymptotic Effectiveness of Linear Estimates of Mean Square Deviation"

Upravlyaemye Sistemy. [Controlled Systems -- Collection of Works], No 7, Novosibirsk, 1970, pp 51-58, (Translated from Referativnyy Zhurnal, Kiberneti-ka, No 10, 1971, Abstract No 10 V223 by V. Shemenev).

Translation: Suppose $\xi_1 \leq \xi_2 \leq \ldots \leq \xi_n$ is a variation series of samples from distribution $F(x-a/\sigma)$, where $F(y)$ is a known function, a and σ are unknown; $\theta_n = \sum_{i=1}^{n} h_i^n \xi_i$ is a linear estimate of standard deviation σ. Coefficients h_i^n minimizing the dispersion of estimate θ_n are found. The asymptotic effectiveness of the estimate produced is proven.

USSR

UDC: 621.372.412

LOBANOV, Ye. M., CHUBAROV, L. B., YAKOVLEV, V. N., NEDOSTUPOV, V. N.,
BAGAYEV, N. M.

"Oscillation Frequency Temperature Dependence of Crystal Plates"

Translation: An investigation is made into the effect which temperature
has on the frequency of oscillations of a quartz AT-section plate. An
expression is derived which can be used to evaluate the effect of the tem-
perature coefficients of the constants of elasticity of quartz as well as
the effect of the angle of plate cut-off on the temperature coefficient of
frequency. V. V.

1/1

USSR   UDC 621.373.535 (206.3)

BAGAYEV, S. N., VASILENKO, L. S., MATYUGIN, YU. A., KLEMENT'YEV, V. M., TROSHIN, B. I., and CHEBOTAYEV, V. P.

"Some Results of a Study of the Generation Frequency Stability of Gas Lasers on the 0.63, 1.5, 3.39, and 9.6 Micron Wavelengths"

Abstract: The article gives a brief description of the principal results of the authors' study of the frequency stabilization of gas lasers on the 0.63, 1.5, 3.39, and 9.6-micron wavelengths. Various frequency stabilization methods were used: viz., a stabilization method based on the Lamb dip, stabilization methods according to the peak in the output radiation power (a laser with an internal absorption cell) and with an external gas absorption cell in a variable magnetic field. The main purpose of this work was to show that high frequency stability values can be attained in various lasers by various methods. The experimental setup and the measurement procedures used by the authors, as well as the research results will be described in separate

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· USSR

BAGAYEV, S. N., et al., Optika i Spektroskopiya, Vol 32, No 4, Apr 72, pp 802-808

articles. The main emphasis was placed on the physical principles of the stabilization methods used and the results attained. All the principal results are shown in a table which, besides generation-frequency-stability measurement data, also gives parameters which characterize the physicotechnical properties of an optical frequency discriminator.

2/2

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USSR   UDC 631.8+632.954:633.52.1

PAGAYEV, V. B. and ABUYEVA, A. A., Timirizyayev Agricultural Academy

"Effects of Various Levels of Nitrogen, Phosphorus and Potassium Nutrition
on the Sensitivity of Common Flax to the 2M-4Kh Herbicide"

Moscow, Khimiya v sel'skom khozyaystve, No 11, 1971, pp 51-53

Abstract: Research conducted in recent years indicates that the sensitivity
of plants to herbicides is largely a function of nutritional factors. This
investigation concerns the effect of various doses of nitrogen, phosphorus
and potassium on the sensitivity of common flax to the herbicide 2M-4Kh.
The dose levels were categorized as half-doses, ordinary doses, double doses
and for potassium -- also tripple doses. The nitrogen fertilizer was appli-
ed in the form of ammonium nitrate, the phosphorus fertilizer -- as monosub-
stituted calcium phosphate, and potassium -- as potassium sulfate. The
study shows that with an increase of the nitrogen fertilizer dose above the
ordinary norm, the sensitivity of the flax to the 2M-4Kh herbicide increases
with subsequent adverse effects on the crop. In experiments with phosphorus
nutrition, the lowest sensitivity to 2M-4Kh was shown with a double ferti-
lizer dose. The flax sensitivity to the herbicide was found to decrease
with an increase in the phosphorus nutrition level. Experiments involving
1/2

USSR

BAGAYEV, V. B. et al, Khimiya v sel'skom khozyaystve, No 11, 1971, pp 51-53

potassium nutrition show that the least sensitive to 2M-4Kh were plants cultivated with a double dose of potassium fertilizer. Further increase of potassium nutrition (as well as a decrease in dose) adversely affected the flax crop.

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DREZYIN, R. S., VYSHNEVETSKAYA, L. O., BAGDAMYAN, YE. YE., YANKEVICH, O. D.,
TARASOVA, L. B., and KLENOVA, A. V., Institute of Virology Virusologii, No 6,
Nov/Dec 71, pp 670-676

Abstract: Cotton rats aged $1\frac{1}{2}$-2 weeks were experimentally infected with the
Long strain of RS virus through intranasal inoculation, and the progress of
the disease was investigated with three methods, yielding corresponding
results. The virus and the specific antigen (anti-RS FITC-globulin of
rabbits) were detected 24 hours after inoculation. The intensity of fluore-
sence, the precentage of cells containing the antigen, and the virus titer
in the epithelium of the nose, trachea, bronchi, and alveoli reached a maximum
in 3 to 5 days, at which time maximum pathomorphological changes were also
observed in the epithelium of the trachea, bronchi, and bronchioles. The
intensity of the infectious process declined on the 7th day, and neither
the specific antigen, nor the virus, nor the pathomorphological changes in
the epithelium of the respiratory pathways were found on the 14th day.

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GORLIN, G. B., PARITSKIY, L. G., RYVKIN, S. M., BAGDANAVICHUS, A. A.

"Possibility of Using the Electrophotographic Semiconductor-Dielectric System in Long Wave Semiconductor Photography"

Abstract: Photography in the long wave range is possible on the basis of the principle of controllable sensitivity [L. G. Paritskiy, et al., Zh. nauch. i prikl. fotog. i kinematogr., No 15, 185, 1970; L. G. Paritskiy, et al., FTP, No 4, 764, 1970]. The implementation of this principle requires a device in which the photographic sensitivity is switched on electrically or otherwise only at the time of exposure to avoid fogging of the photographic film by the equilibrium background radiation. These requirements are satisfied by the electrographic semiconductor-dielectric system [S. G. Grenishin, Elektrofotograficheskiy protsess, Nauka Press, Moscow, 1970; R. Shaffert, Elektrofotografiya, Mir Press, Moscow, 1968] investigated in this article. A layer of semiinsulating GaAs alloyed with zinc 1,000 microns thick with a specific resistance of 10^8 ohm-cms was used as the photosemiconductor. The dielectric layer was a polyethylene film 10 microns thick with a conducting coating. The light source had a light flux power to $3 \cdot 10^{-2}$ watts/cm^2. It was assumed that the charge
1/2

USSR ˙

GORLIN, G. B., et al., <u>Fizika i Tekhnika Poluprovodnikov</u>, Vol 6, No 2, 1972,
pp 427-428

transfer could occur through a gap filled with liquid nitrogen. The semicon-
ducting layer and the dielectric layer were clamped between conducting elec-
trodes and the device was charged with liquid nitrogen to complete cooling.
Then simultaneously with illumination, a voltage pulse lasting 80 milliseconds
was applied to the conducting electrodes. Even with a voltage pulse of 8 kilo-
volts, the charge transfer did not take place until experiments were performed
in which the system cooled by submerging completely in liquid nitrogen was
partially extracted to the level at which the semiconductor contact with the
dielectric was above the nitrogen surface. Charge transfer took place after
removal of the nitrogen in the gap for an 80 millisecond, 3 kilovolt pulse.

2/2

TITLE--FERRITE MICROWAVE FILTERS WITH TRAVELING WAVE TUBE -U-

AUTHOR-(02)-BAGDANOV, G.S., MALYAKIN, A.K.

COUNTRY OF INFO--USSR

SOURCE--MOSCOW, RADIOTEKHNIKA I ELECTRONIKA, VOL 15, NO 2, 1970, PP
  405-408
DATE PUBLISHED-------70

SUBJECT AREAS--ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--TRAVELING WAVE TUBE, MICROWAVE FILTER, FERRITE, DESIGN
  STANDARD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1991/1330   STEP NO--UR/0109/70/015/002/0405/0408

CIRC ACCESSION NO--AP0110507
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0110907
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PROBLEMS RELATED TO THE DESIGN AND
FEATURES OF THE OPTIMAL STRUCTURE OF FERRITE FILTERS ARE CONSIDERED.
CERTAIN CONSTRUCTION VARIANTS OF FERRITE WAVEGUIDE FREQUENCY SELECTIVE
SYSTEMS FOR MICROWAVE RECEIVERS ARE PRESENTED SCHEMATICALLY. THE
BEHAVIORAL CHARACTERISTICS OF PARASITIC RESONANCES (INHOMOGENEOUS
PRECESSION MODES), WHICH DETERMINE THE FERRITE FILTERS IN A WIDE
FREQUENCY RANGE ARE INVESTIGATED. IT IS SHOWN THAT THE SUPPRESSION OF
INHOMOGENEOUS PRECESSION MODES OCCURS IN SUCH SYSTEMS. THE NUMBER OF
FILTERS WHICH ENSURE A GIVEN SUPPRESSION COEFFICIENT A IS DETERMINED.
EXPRESSIONS ARE DERIVED FOR THE TRANSMISSION AND SUPPRESSION
COEFFICIENTS. THE DEPENDENCE OF THE SUPPRESSION COEFFICIENT A ON THE
GENERALIZED DETUNING OF ARBITRARY MODES OF OSCILLATIONS, WITH RESPECT TO
ITS FERROMAGNETIC RESONANCE FREQUENCY, IS PRESENTED IN A GRAPH.
ABSTRACT: THESE CHARACTERISTICS MAKE IT POSSIBLE TO DETERMINE THE
SUPPRESSION COEFFICIENT A OR THE NUMBER OF FERRITE RESONATORS WITH
SUFFICIENTLY HIGH ACCURACY. THE POSSIBILITY OF AN INDEPENDENT
ORIENTATION OF EACH FERRITE RESONATOR IS AN IMPORTANT PROPERTY OF
FERRITE FILTER SYSTEMS, WHICH MAKES IT POSSIBLE TO OBTAIN THERMALLY
STABLE HIGHLY DISCRIMINATING FILTERS IN A WIDE RANGE OF TEMPERATURES.
THE RESULTS OBTAINED MAKE IT POSSIBLE TO PRODUCE FERRITE FILTERS WITH
GIVEN DISCRIMINATING AND BAND CHARACTERISTICS.

UNCLASSIFIED

Abstract: Problems related to the design and features of the
optimal structure of ferrite filters are considered. Certain
construction variants of ferrite waveguide frequency-selective
systems for microwave receivers are presented schematically.
The behavioral characteristics of parasitic resonances (in-
homogeneous precession modes), which determine the ferrite
filters in a wide frequency range are investigated. It is shown
that the suppression of inhomogeneous precession modes occurs
in such systems. The number of filters which ensure a given
suppression coefficient A is determined. Expressions are de-
rived for the transmission and suppression coefficients. The
dependence of the suppression coefficient A on the generalized
detuning of arbitrary modes of oscillations, with respect to its
ferromagnetic resonance frequency, is presented in a graph.
1/2

USSR

BAGDANOV, G. B., et al, Radiotekhnika i Electronika, Vol 15,
No 2, 1970, pp 405-406

Abstract: These characteristics make it possible to determine
the suppression coefficient A or the number of ferrite resonators
with sufficiently high accuracy. The possibility of an in-
dependent orientation of each ferrite resonator is an important
property of ferrite filter systems, which makes it possible to
obtain thermally-stable highly discriminating filters in a wide
range of temperatures. The results obtained make it possible
to produce ferrite filters with given discriminating and band
characteristics. Orig. art. has: 3 figures and 8 formulas.

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USSR

UDC 548.0+535.35

BAGDASAROV, CH. S., KAMINSKIY, A. A., KEVORKOV, A. M., PRCKHOROV, A. M. (Academician) SARKISOV, S. E., and TEVOSYAN, T. A., Institute of Crystallography, imeni A. Z. Shubnikov and Physical Institute imeni P. N. Lebedev, USSR Academy of Sciences, Moscow

"Laser Properties of a Y_2SiO_5-Nd^{3+} Crystal in Radiation at $^4F_{3/2} \rightarrow {}^4I_{11/2}$ and $^4F_{3/2} \rightarrow {}^4I_{13/2}$ Transitions"

Abstract: The crystals were formed in a 1:1 oxide system of Y_2O_3-SiO_2. They are biaxial and positive with $N_g = 1.825$ and $N_p = 1.807$. Their melting point is $1980\pm30°C$ and the optical range of transparency extends from about 0.18 to about $4.9\,\mu$ at a sample thickness of about 1mm. Pulse-stimulated radiation was recorded at 300°K and 77°K in the spectral regions of $1.075\,\mu$ for the first transition and $1.36\,\mu$ for the second. Attempts to obtain $^4F_{3/2} \rightarrow {}^4I_{9/2}$ transitions at 77°K were unsuccessful. Analysis of the spectra of absorption and

1/2

USSR

BAGDASAROV, CH. S., et al., Doklady Akademii Nauk SSSR, Vol 212, No 6, 1973, pp 1326-1327

luminescence showed that the Nd^{3+} ions enter into the composition of a minimum of two types of activated sensors, which result, with the measurements made, cast serious doubt on the results reported by Arsenev, Raiskaya, and Sviridovaya in Phys. Stat. Sol., No 13, 1972.

2/2

Radiation Chemistry

USSR

UDC 544.6:546.65

SHEMELEVA, G. G., BAGDASAROV, K. N., and STEPANENKO, Yu. V.,
Rostov-NA-Donu State University

"New Extraction-Photometric Method for Determining Uranium in Minerals"

Abstract: Uranium may be selectively extracted from a solution of uranium
nitrate using tributyl phosphate (TBP) and CCl_4, resulting in a 90% yield.
The U(VI) is reacted with p-nitrophenylfluorone (NPF) and the solution
analyzed photometrically. Cadmium, zinc, molybdenum (VI), vanadium (V),
iron (III), lanthanum, thorium, and zirconium -- in concentrations 1600,
500, 200, 200, 100, 50, 50, and 25 times that of U(VI) respectively --
did not interfere with the photometric determination of the U-NPF complex.
This technique was applied to analyzing for U in carnotite; relative error
was $\pm 2\%$ for amounts of U ranging from 150 to 450 micrograms.

1/1

1/2   019   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--RADIOISOTOPE METHODS OF INVESTIGATION IN THE DIAGNOSIS OF
    NEPHROGENIC HYPERTENSION -U-
AUTHOR--BAGDASAROV, M.B.

COUNTRY OF INFO--USSR

SOURCE--KLINICHESKAYA MEDITSINA, 1970, VOL 48, NR 3, PP 31-36

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HYPERTENSION, KIDNEY FUNCTION, RADIOACTIVE ISOTOPE, DIAGNOSTIC
    DRUG

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/1042   STEP NO--UR/0497/70/048/003/0031/0036

CIRC ACCESSION NO--AP0126680
                        UNCLASSIFIED

CIRC ACCESSICN NC--AP0126680
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF EXAMINATION OF 192
  PATIENTS WITH ARTERIAL HYPERTENSION, IN 68 OF WHOM IT WAS ASSOCIATED
  WITH DIFFERENT DISEASES OF THE KIDNEYS, THE AUTHOR ARRIVED AT THE
  CONCLUSION ON THE OBVIOUS VALUE OF ISOTOPE RENOGRAPHY AND SCANNING IN
  THE RECOGNITION OF THE GENESIS OF THE DISEASE. THESE TECHNIQUES ENABLE
  TO ESTABLISH THE SIDE AND DEGREE OF AFFECTION AND THE STATE OF THE
  CONTRALETERAL KIDNEY. THE FINDINGS OF THE STATE OF THE KIDNEY FUNCTION
  OBTAINED BY MEANS OF RADIOISOTOPE METHODS IN THE PRELIMINARY STAGE OF
  EXAMINATION MAY PROVE TO BE VERY VALUABLE IN PLANNING THE EXAMINATION
  AND CHOICE OF THE THERAPEUTIC TACTICS.   FACILITY: GLAVNYY
  KLINICHESKIY VOYENNYY GOSPITAL' IM. N. N. BURDENKO.

UNCLASSIFIED

Radiation Chemistry

USSR   UDC 544.6:546.65

SHCHEMELEVA, G. G., BAGDASAROV, R. N., and STEPANENKO, YU. Y., Chair of
Analytical Chemistry, Rostov-on-Don State University, Rostov-on-Don

"Spectrophotometric Study of the Interaction of Uranium (VI) with 9-p-Nitro-
phenyl-2,3,7-trihydroxy-6-fluorone"

Abstract: A method for the determination of UO_2^{++} by the reaction with "p-
-nitrophenylfluorene" (9-p-nitrophenyl-2,3,7-trihydroxy-6-fluorone; I) was
developed. To a solution containing 5-50 gamma UO_2, 5 ml of an acetate buffer
solution (pH 6.0-6.2) and 3 ml of a solution of I (2 x 10^{-3} g-mole/1.) in EtOH
were added, whereupon the solution was diluted to 25 ml. A raspberry-red
color developed, which was due to the formation of a compound of I with UO_2^{++}
in a 2:1 ratio. Two H atoms (one per molecule in two molecules of I) were
substituted by one UO_2 group; this indicated that I reacted with UO_2^{++} as an
orthohydroxyquinone. The colored solution was subjected to spectrophotometry
at 530 nm. The dissociation constant of the UO_2-I compound, determined by the
1/2

USSR

SHCHEMELEVA, G. G., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy, Khimiya i Khimicheskaya Tekhnologiya, Vol 16, No 2, 1973, pp 198-210

method of dilution, was 7.9×10^{-15}. The molar coefficient of extinction of the compound, determined according to Komar', was 2.2×10^{-4}. Beer's law applied at U concentrations of 0.2-10 gamma/ml. The relative error of spectrophotometric determinations of U in pure UO_2^{++} salts was $\cong 2.5\%$.

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USSR   UDC: 624.131.43+539.21.084-492.3

ARARKTSYAN, G. M., BAGDASARYAN, A. B.

"Concerning Investigation of the Motion of a Mudslide"

Sb. nauch. tr. Yerevan. politekhn. in-ta (Collected Scientific Works of
Yerevan Polytechnical Institute), 1970, 25, pp 52-57 (from RZh-Mekhanika,
No 5, May 72, Abstract No 5V498)

Translation: The paper discusses the particulars of a mudflow (mountain
flows of water saturated with solid matter). In contrast to the action of
conventional water flow against a barrier, where there is no time for the
development of a shock wave, in the case of a mudslide the time of shock
wave development is shorter, which is due to the slow speed of the relief
waves and to the colloidal properties of mud. The authors discuss use of a
viscoplastic model (Bingham medium) for describing a mudslide. Specifically,
simple expressions are given for the velocity of mudflow as a function of
slope, yield stress and the coefficient of viscosity. These expressions can
be used for experimental verification of the applicability of this model.
Bibliography of 11 titles. R. I. Nigmatulin.

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BAGDASAR'YAN, G. A.

SANITARY MICROBIOLOGICAL RESEARCH DEALING WITH PREVENTION OF BACTERIAL AND
VIRAL INFECTIONS

[Article by I. Ye. Korsh, G. A. Bagdasar'yan, N.V. Vladova, Yu.G. Talayeva,
V. V. Levishevich, Dep. Microbiol. Dis. Hygiene (Moscow); Moscow, Vestnik
Akademii Meditsinskikh Nauk SSSR, Russian, No 1, 1972, pp 71-78]

One of the decisive factors in nonspecific prophylaxis of bacterial
and viral infections is institution of health improving hygienic measures.
Prompt development of first and foremost sanitary measures is determined
largely by the results of systematic sanitary microbiological investiga-
tions of environmental objects (water, air in buildings, soil).

Sanitary microbiology, which has been studying the quality of drinking
water and sanitary state of reservoirs, soil, and air, jointly with hygienists,
have developed sensitive methods and accumulated extensive experimental and
factual data, which permitted recommendation of norms that are used in
routine sanitary practice to regulate the quality of water.

From the standpoint of prophylaxis of intestinal infections, improve-
ment of routine methods of rating the quality of water and sanitary condition
of reservoirs with respect to bacterial contamination is becoming very
important. One of the directions of work in this area is evaluation of the
existing methodological approaches to isolation of the E. coli group of
bacteria as indicators of the degree of fecal pollution of water. For this
purpose, the sanitary significance of bacteria included in the E. coli group
was investigated, on the basis of fermentation of glucose at 43°, according
to GOST All-Union State Standard 5216-50, for several years in different
climatic zones of the Soviet Union, in reservoirs of different types and with
different sources of pollution. It was established that the glucose-fermenta-
tion does not present the same differentiation between bacteria that are
significant from the sanitary point of view and E. coli that have lost this
property and water bacteria. This was confirmed not only for the reservoirs
of the South but also in the temperate zone. The quality of water in rivers
[...], with respect to fecal contamination, is best characterized by lactose-
positive variants of Enterobacteriaceae, studied on lactose media at a tempe-
rature of 37° and demonstrated best by the method of membrane filters (L.Ye.

- 106 -

USSR   UDC 519.217

BAGDASARYAN, G. A.

"A Multiline Queueing System with Requests of Several Types"

Bol'shiye Sistemy. Massovoye Obsluzh. Nadezhnost' [Large Systems. Queueing.
Reliability -- Collection of Works], Moscow, Nauka Press, 1970, pp 137-142
(Translated from Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract
No. 4 V48 by V. Ivanitskiy).

Translation: A fully accessible, l-line $(l>1)$ queueing system is studied, the
input of which receives m independent simple flows, the ith flow having intensity
λ_i, $\Lambda = \Sigma_i \lambda_i$. The servicing time is exponentially distributed with parameter μ. No
type of request has priority over others. Suppose ξ and X_i are the number of all
requests and the number of requests of type i in the system respectively, $P\{\xi = n, X_1
= r_1, \ldots, X_m = r_m\} = F(n, r_1, \ldots, r_m)$. A formula is found for the generating function
$\Phi(S_0, s_1, \ldots, s_m) = \Sigma F(n, r_1, \ldots, r_m) s_0^n s_1^{r_1} \ldots s_m^{r_m}$ from which, in particular, expressions
are produced for $M\xi$ and MX_i. Similar results are also produced for the distribution
of the composition of the line.

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USSR   UDC 576.858.23.07+616.988.23-034.48

BAGDASAR'YAN, G. A. and LOVTSEVICH, Ye. L.

Indikatsiya i Inaktivatsiya Kishechnykh Virusov v Ob"yektakh Vneshney Sredy
(Detection and Inactivation of Enteroviruses in Environmental Objects), Moscow,
1972, 128 pp

Translation: Contents

1/2

USSR

BAGDASAR'YAN, G. A. and LOVTSEVICH, Ye. L., Indikatsiya i Inaktivatsiya Kishechnykh Virusov v Ob"yektakh Vneshney Sredy, 1972, 128 pp

2/2

- 70 -

TITLE--THE CONNECTION BETWEEN THE FORCE OF IMPACT AND THE CHARACTER OF
    CHANGES IN CUTTING FORCES DURING PLANING -U-
AUTHOR--KASYAN, M.V., ARUTYUNYAN, G.A., BAGDASARYAN, G.B.

COUNTRY OF INFO--USSR

SOURCE--YEREVAN, IZVESTIYA AKADEMII NAUK ARMYANSKOY SSSR, SERIYA
    TEKHNICHESKIKH NAUK, VOL 23, NO 1, 1970, PP 3-10
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CUTTING TOOL, BIBLIOGRAPHY, METAL CUTTING, METAL MACHINING,
    PLANING MACHINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1671   STEP NO--UR/0173/70/023/001/0003/0010

CIRC ACCESSION NO--AP0104893
                          UNCLASSIFIED

CIRC ACCESSION NO--AP0104893
ABSTRACT/EXTRACT--(U) GP-0-   ABSTRACT.   A STUDY WAS MADE OF THE PHYSICAL
  NATURE OF THE CHANGE IN COMPONENTS OF CUTTING FORCE DURING PLANING IN
  CONNECTION WITH THE FORCE OF IMPACT.   RATED AND EXPERIMENTAL VALUES OF
  THE IMPACT FORCE UPON INCISION OF THE CUTTING TOOL ONTO MACHINED METAL
  ARE OBTAINED.   IT WAS ESTABLISHED THAT, BEGINNING FROM DEFINITE VALUES
  OF THE SPEED OF CUTTING, BECAUSE OF THE IMPACT OF CUTTING TOOL UPON
  MACHINED METAL, NOTICEABLE TRACES OF WEAR RESEMBLING WEAR CHAMFERING ARE
  FORMED ON THE BACK SURFACE OF THE CUTTING TOOL.   AS A RESULT, FORCES
  ACTING ON THE BACK SURFACE OF THE CUTTING TOOL INCREASE AND THEREBY
  AUGMENT COMPONENTS OF THE CUTTING FORCE.   TWO TABLES.

UNCLASSIFIED

TITLE--DATA ON ANALYSES OF STANDARD GEOCHRONOLOGICAL SAMPLES -U-

AUTHOR-(05)-AFANASYEV, G.D., BRANDT, S.B., BAGDASARYAN, G.P., GOROKHOV,
    I.M., GUKASYAN, R.KH.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. GEOL. 1970, (4), 104-11

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHRONOLOGY, POTASSIUM ARGON DATING, LEAD ISOTOPE, ABSOLUTE
    AGE, EARTH CRUST AGE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3008/0411   STEP NO--UR/0011/70/000/004/0104/0111

CIRC ACCESSION NO--AP0137502
                        UNCLASSIFIED

2/2   006   UNCLASSIFIED   PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0137502
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DATA ARE GIVEN ON ANAL. OF
   GEOCHRONOL. STDS. OF THE SOVIET UNION FOR K-AR AND RB-SR METHODS AND
   SEVERAL MINERALS OF PRECAMBRIAN PEGMATITE USES AS STD. FOR THE PB
   ISOTOPIC METHOD OF ABS. AGE DETN.   THEY SHOWED A GOOD AGREEMENT WITH
   CONTROL ANAL. MADE IN VARIOUS LABS. OF THE U.S.S.R. AND BY THE LAB. AT
   BERN, SWITZERLAND.   THE RESULTS OF STUDY OF GEOCHRONOL. STD. BY VARIOUS
   METHODS INDICATE THAT THE VALUES OF CONSTS. OF PRIME40 K AND PRIME87 RB
   DECAY APPROVED BY 13 SESSIONS OF THE COMMISSION ON ABS. AGE DETN. (FOR
   K: LAMBDAK EQUALS 0.0557 TIMES 10 PRIME NEGATIVE9 PER YR AND
   LAMBDABETA EQUALS 0.472 TIMES 10 PRIME NEGATIVE9 PER YR; FOR RB
   LAMBDABETA EQUALS 1.39 TIMES 10 PRIME NEGATIVE11 PER YR), SHOULD BE USED
   IN PRACTICAL WORK UNTIL MORE CERTAIN VALUES FOR THESE CONSTS. ARE DETD.
   EVERY WORK ON THE ABS. AGE DETN. SHOULD BE ACCOMPANIED BY PRIMARY ANAL.
   DATA ON THE CONTENT OF PARENTAL AND DERIVATED DECOMPN. PRODUCTS AND BY
   THE VALUES OF CONSTS. USED DURING AGE CALCN.   FACILITY: INST.
   GEOL. RUD. MESTOROZHD., PETROGR., MINER. GEOKHIM., MOSCOW, USSR.

UNCLASSIFIED

USSR

AMBARTSUMYAN, S.A., BAGDASARYAN, G.YE., BELUBEKYAN, M.V. (Yerevan)

"Concerning the Three-Dimensional Problem of Magnetoelastic Oscillations of a
Plate"

Abstract: The problem of investigation of the magnetoelastic oscillations of
an electrically conductive plate in a magnetic field is reduced to the simul-
taneous solution of the equations of magnetic elasticity in a region occupied
by the plate (internal problem), and the equations of electrodynamics for the
entire remaining region of the space under consideration (external problem).
An attempt is made to determine the magnetic field of a thin plate of finite
conductivity, by means of asymptotic integration of the simultaneous equations
of magnetoelasticity for the region occupied by the plate. Simultaneously
considering the internal problem and the external problem, an investigation
is made of the magnetoelastic oscillations of a thin plate of finite con-
ductivity. Some hypotheses of magnetoelasticity are formulated for a plate
of finite conductivity. In special cases, when the material of the plate is
ideally conductive or when an infinitely extending thin plate has finite
electric conductivity, the problem of magnetoelastic oscillations is solved
relatively simple. In the general case, when the plate may have finite
dimensions while its material is finitely conductive, the solution of this

1/2

USSR

AMBARTSUMYAN, S.A., et al, Prikladnaya Matematika i Mekhanika, No 2, March-April 1971, pp 216-228.

problem becomes very difficult, since in this case the internal problem cannot be divided and a precise determination of the magnetic field of the plate in a three-dimensional formulation is not possible. 6 bibliographic entries.

2/2

TITLE--SECONDARY PHOTOCHEMICAL PROCESSES OF TWO QUANTUM PHOTOIONIZATION OF
   AROMATIC AMINES AT 77DEGREESK -U-
AUTHOR-(02)-KONDRATYEV, V.A., BAGDASARYAN, KH.S.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(1), 35-42

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--QUANTUM CHEMISTRY, PHOTOCHEMISTRY, AROMATIC AMINE, PHENYLENE,
   DIAMINE, PHOTOEFFECT, LOW TEMPERATURE EFFECT, IONIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1116   STEP NO--UR/0456/70/004/001/0035/0042

CIRC ACCESSION NO--AP0104514
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0104514
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SECONDARY PHOTOCHEM. REACTIONS
IN SOLNS. OF N,N,N'.N'-TETRA-METHYL-P-PHENYLENEDIAMINE (I) AND
N,N-DIMETHYL-P-PHEYLENEDIAMINE (II) IN ETOH, PR SUB2 O, AND TERT-BUOH,
AND PH SUB2 NH IN PR SUB2 O ARE STUDIED. THE IRRADN. OF I TAKES PLACE
IN 2 STEPS, THE 1ST YIELDING A PRODUCT ABSORBING AT 540 NM, FORMED WITH
A RAPIDLY STABILIZING CONCN. OF THE CATION RADICAL, WHICH INCREASES WITH
INCREASED LIGHT INTENSITY. THE 2ND STAGE PROCEEDS DIFFERENTLY IN THE PR
SUB2 O AND THE ALCS. THE ALC. DISPROPORTIONATES TO GIVE AN ELECTRON
RECOMBINING WITH THE CATION RADICAL. IN THE ETHER, A RADICAL MATRIX IS
FORMED TO EFFECT PHOTORECOMBINATION. II AND PH SUB2 NH ARE SIMILARLY
SENSITIZED TO GIVE AN IONIZATION OF THE AMINE FOLLOWED BY
PHOTORECOMBINATION.

UNCLASSIFIED

Radiation Chemistry

BOROVKOVA, V. A., BAGDASAR'YAN, Kh. S., CHEPEL', D. V., SHEMAROV, F. V.,
Institute of Physical Chemistry imeni L. Ya. Karpov

"Pulse Radiolysis of Polymethylmethacrylate Containing Aromatic Compounds"

Abstract: The formation of ions during pulse radiolysis of solutions of tri-
phenylamine, biphenyl, naphthalene in polymethylmethacrylate (M) at $300^{\circ}K$ was
investigated. The spectrum of the pure polymer is at least partially due to
captured electrons; in the presence of CCl_4 its optical density decreases.
Triphenylamine solutions exhibit the spectrum of its cation-free radical (A+).
The spectra obtained in the presence of biphenyl and naphthalene are also due
to the cation-free radicals of the admixtures. During radiolysis of poly-
methylmethacrylate for periods shorter than 10^{-6} sec, cation-free radicals of
the admixture are formed: $M+ + A \rightarrow M + A+$. This process competes effectively
with the primary recombination of matrix charges $M+ + e^- \rightarrow M$ as a consequence
of the electron-acceptor properties of the matrix. Reaction $A+ + e^- \rightarrow A^*$ is
slow for the same reason. The radiation source was a linear accelerator pro-
viding 4 MeV electrons at 4 microsec. pulse duration. The results confirm
previously proposed mechanisms of polymer radioprotection.

1/1

TITLE--MOLECULAR MECHANISMS OF THE EFFECT OF UV IRRADIATION ON THE
   STRUCTURE OF POLYCHLOROPRENE -U-

AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 67-73.

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PHYSICS

TOPIC TAGS--UV RADIATION, POLYMER CROSSLINKING, CONJUGATE BOND SYSTEM,
   POLYCHLOROPRENE, OXIDATIVE DEGRADATION, MOLECULAR STRUCTURE, RADIATION
   EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0969   STEP NO--UR/0431/70/005/001/0067/0073

CIRC ACCESSION NO--AP0136399
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0136399
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. UV IRRADN. OF POLYCHLOROPRENE (I)
   IN THE PRESENCE OF O BROUGHT ABOUT RANDOM OXIDATIVE DEGRADATION AND
   CROSSLINKING. ADDN. OF P 23(2,4,6, TRI,TERT,BUTYLPHENOL) IMPROVED THE
   RADIATIVE STABILITY OF I, PRESUMABLY DUE TO A CONJUGATED PI ELECTRON
   RING SYSTEM WHICH DISSIPATED THE ENERGY ABSORBED BY THE POLYMERS.

UNCLASSIFIED

1/2   040   UNCLASSIFIED   PROCESSING DATE--04DEC70
TITLE--CHANGES IN POLYCHLOROPRENE CRYSTALLIZATION UNDER THE INFLUENCE OF
 UV IRRADIATION STUDIED BY IR SPECTROSCOPY -U-
AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK ARM. SSR, FIZ. 1970, 5(1), 60-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--POLYCHLOROPRENE, CRYSTALLIZATION, UV RADIATION, RADIATION
 EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/0967   STEP NO--UR/0431/70/005/001/0060/0066

CIRC ACCESSION NO--AP0136397
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0136397
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CRYST. POLYCHLOROPRENE (I)
  CONTAINS FLAT POLYMER CHAINS IN WHICH THE MONOMER UNITS HAVE TRANS
  CONFIGURATIONS. SUCH CONFIGURATIONS GIVE IR BANDS AT 1450 CM PRIME
  NEGATIVE1. THE IRRADN. OF I SAMPLES WITH UV LIGHT DECREASES THE IR BAND
  INTENSITY OF I AT 1450 CM PRIME NEGATIVE1 AND CAUSES OTHER SPECTRUM
  CHANGES. THE DECREASE OF I ORIENTATION DUE TO UV IRRADN. IS CAUSED BY
  CROSSLINKING. STABILIZERS, SUCH AS P 23 OR 2246, SCREEN OUT THE
  RADIATION BY ABSORBING THE UV LIGHT ENERGY AND DISTRIBUTE IT AMONG THE
  AROMATIC RINGS.

UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--EFFECT OF ULTRAVIOLET IRRADIATION ON THE STRUCTURE OF CHLOROPRENE
  RUBBERS -U-
AUTHOR-(03)-ASLANYAN, K.A., BAGDASARYAN, R.V., KAFADAROVA, E.A.

COUNTRY OF INFO--USSR

SOURCE--VYSOKOMOL. SOEDIN. SER. A 1970, 12(2), 434-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--POLYCHLOROPRENE, UV RADIATION, EMULSION POLYMERIZATION,
  POLYMER CROSSLINKING, RUBBER, MATERIAL DEGRADATION, RADIATION EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0247   STEP NO--UR/0459/70/012/002/0434/0437

CIRC ACCESSION NO--AP0106903
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0106903
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. POLYCHLOROPRENE (I) RUBBERS PREPD.
BY EMULSION POLYMN. IN THE PRESENCE OF K SUB2 S SUB2 O SUB8, TERT
DODECYL MERCAPTAN, AND NA ALKYLSULFONATE, WERE AGED BY UV IRRADN. THE
IRRADN. CAUSES CROSSLINKING, WHICH PROCEEDS THROUGHOUT THE I VOL. AND IS
MORE EXTENSIVE FOR HIGHER MOL. WT. I, AND DEGRADATION, WHICH IS
ESSENTIALLY A SURFACE PHENOMENON. THE CROSSLINKING DECREASES THE
CRYSTALLINITY; BOTH PROCESSES CHANGE THE POLYDISPERSITY, SOLY., AND
OPTICAL PROPERTIES OF I.

1/2   032   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--STRUCTURE AND MOLECULAR THERMAL PROPERTIES OF WATER -U-

AUTHOR--BAGDASARYAN, S.S.

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 66-71

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUID STRUCTURE, WATER, MOLECULAR STRUCTURE, SPECIFIC HEAT,
   HEAT OF VAPORIZATION, SURFACE TENSION, THERMAL CONDUCTIVITY,
   CALCULATION, HIGH TEMPERATURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0934   STEP NO--UR/0294/70/008/001/0066/0071

CIRC ACCESSION NO--AP0107463
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0107463
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE MODEL OF LIQ.
STRUCTURE, FORMULAS FOR THE TEMP. DEPENDENCE OF COORDINATION NO., DEGREE
OF ASSOCN., SP. HEAT, C SUBP, (KCAL-KG DEGREE), SP. HEAT OF
VAPORIZATION, R (KCAL-KG), SURFACE TENSION, SIGMA (ERGS-CM PRIME2), AND
THERMAL DIFFUSIVITY, LAMBDA (KCAL-M HR DEGREE) OF WATER WERE DERIVED FOR
TEMP. INTERVAL 273DEGREES-573DEGREESK.   THE C SUBP WAS CALCD. FROM C
SUBP EQUALS AE PRIMEALPHA PLUS B(1 MINUS E PRIME NEGATIVEALPHA), WHERE A
EQUALS 0.987, B EQUALS 0.909 OR 0.267 FOR 273 IS SMALLER THAN OR EQUAL
TO T IS SMALLER THAN OR EQUAL TO 513DEGREESK AND 523DEGREES IS SMALLER
THAN OR EQUAL TO T IS SMALLER THAN OR EQUAL TO 623DEGREESK, RESP., ALPHA
EQUALS (T MINUS T SUBE) OVER (2T SUBK MINUS T), WHERE T SUBE AND T SUBK
ARE THE MELTING TEMP. AND CRIT. TEMP., RESP.; R WAS CALCD. FROM R EQUALS
1033.4 (1 MINUS T-T SUBK) E PRIMEALPHA PLUS 502.9 (1 MINUS E PRIME
NEGATIVEALPHA), SIGMA FROM SIGMA EQUALS 130.7 (1 MINUS T-T SUBK) E
PRIMEALPHA PLUS 28.44 (1 MINUS E PRIME NEGATIVEALPHA), AND LAMBDA EQUALS
1.516 MINUS 1.035E PRIME NEGATIVEALPHA FOR 273 IS SMALLER THAN OR EQUAL
TO T SMALLER THAN OR EQUAL TO 393DEGREESK OR LAMBDA EQUALS 0.674E PRIME
NEGATIVEALPHA FOR 393DEGREES IS SMALLER THAN OR EQUAL TO T SMALLER THAN
OR EQUAL TO 613DEGREESK.   DIFFERENCES BETWEEN CALCD. AND EXPTL. VALUES
AT HIGH TEMPS. AMY BE EXPLAINED BY FORMING MICROMOL. GROUPS FROM
INDIVIDUAL MOLS.   FACILITY: AZERB. PEDAGOG. INST. IM. LENINA,
BAKU, USSR.

UNCLASSIFIED

USSR

SHIRMAN, YA.D., BAGDASARYAN, S.T.

"Analysis Of The Correlation Functions Of Space-Time Broad-band Signals Received
By Linear Antennas"

Abstract: Two-dimensional correlation functions (distance-angle) of space-time
broad-band signals are analyzed and compared for three versions of the construc-
tion of discrete and continuous linear antennas, with information processing. The
three versions are: 1) The antenna is phased in the arbitrary direction (θ) for
all harmonic oscillations in the frequency band of the signal with a unit (?).
Specifically, tuning is performed by delay lines (antenna with time tuning).
2) The antenna is phased in an arbitrary direction only at the center frequency
f_0 of the signal spectrum with the aid of a system of phase shifters (antenna
with phase tuning). 3) The antenna is phased for all oscillations in the frequen-
cy band of the signal, but only in one direction normal to its orbit (electri-
cally non-tunable broad-band antenna). The dependence is shown of the effective
directional diagram on the error signal with respect to the time of arrival,
important with the width of its band. 5 fig. 3 ref. Received by editor, 16 June
1971.
1/1

TITLE--SIMPLIFIED METHOD FOR CALCULATING THE EQUILIBRIUM COMPOSITION OF
  NITROGEN OXIDES OVER NITRIC ACID SOLUTIONS -U-

AUTHOR-(03)-ATROSHCHENKO, V.I., BAGDASARYAN, V.S., PERLOV, YE.I.

COUNTRY OF INFO--USSR

SOURCE--ARM. KHIM. ZH. 1970, 23(2), 107-13

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN OXIDE, NITRIC ACID, CHEMICAL EQUILIBRIUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1319   STEP NO--UR/0426/70/023/002/0107/0113

CIRC ACCESSION NO--AP0116779
                              UNCLASSIFIED

CIRC ACCESSION NO--AP0116779
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EQUATIONS WERE STUDIED, ALONG WITH
METHODS FOR THEIR SOLUTION, FOR CALCG. THE EQUIL. COMPN. OF THE N OXIDES
OVER HNO SUB3 SOLNS. AS A FUNCTION OF THE PARTIAL PRESSURE OF THE OXIDES
AND THEIR DEGREE OF OXIDN. IN THE STARTING GAS MIXT. CALCNS. WERE MADE
WITH AND WITHOUT TAKING INTO ACCOUNT THE CHANGE IN THE GAS VOL. DUE TO
THE REACTION OF THE OXIDES WITH THE ACID SOLNS. NOMOGRAMS ARE GIVEN TO
SIMPLIFY THE CALCNS.   FACILITY: GOS. NAUCH.-ISSLED. INST.
AVTOMAT. PROIZVOD. PROTSESS. KHIM. PROM. TSVET. MET., KIROVAKAN, USSR.

UNCLASSIFIED

USSR   UDC 621.382.5

BAGDASAR'YANTS, E.I.

"Unijunction Transistor And Its Use"

V sb. Poluprovodn. pribory i ikh primeneniye (Semiconductor Devices And Their
Application--Collection Of Works), Issue 24, Moscow, "Sov.radio," 1970, pp 183-
203 (from RZh--Elektronika i yeye primeneniye, No 4, April 1971, Abstract No
4 B245)

Translation: A unijunction transistor is considered as a switching [klyuchevoy]
element. The physical process is described which leads to the appearance of part
of the negative differential resistance in the input voltampere characteristic.
7 ill. 30 ref. Author's abstract.

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UDC 613.732:547.538.141]:614.895.5

BAGDINOV, Yu. M., Institute of Industrial Hygiene and Occupational Diseases, Academy of Medical Sciences USSR

"Experimental Hygienic Study of the Protective Properties of Fabrics Used in Work Clothes Worn in an Atmosphere Containing Styrene"

Moscow, Gigiyena i Sanitariya, No 10, 1971, pp 25-29

Abstract: Seven fabrics (cotton, cotton with polycaprolactam resin, cotton impregnated with chromolan, cotton with flax impregnated with water-resistant substance, pure flax, silk, wool with polyacrylonitrile fiber) were tested for styrene resistance in a special apparatus. The device permitted simultaneous determination of styrene in the air above the protective clothing, in the space under the clothing, and the behavior of styrene in the fabric with increasing length of exposure). The air in the experimental chamber contained styrene in concentrations 3.5 to 5.0 times the maximum permissible concentration (MPC for styrene: 5.0 mg/m^3). Only small and constant quantities of the substance were found in the different fabrics regardless of the length of exposure, suggesting that vaporous styrene was not absorbed by the fabrics but diffused through the pores. Most of the fabrics tested reduced the styrene level to the MPC or lower, but provided little protection when the

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USSR

BAGDINOV, Yu. M., Gigiyena i Sanitariya, No 10, 1971, pp 25-29

styrene concentration was 10.0 mg/m^3 or more. The most effective was wool with polyacrylonitrile fiber.

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General

USSR

BAGDONAS, A., Candidate of Biological Sciences

"Two-Headed Janus in Living Nature"

Abstract: Biochronometry, the science of time measurement in living systems, is mainly a product of the last two decades. While it has no generally accepted theory at this time, as is typical of young sciences, still a great deal of interesting material has been accumulated. It is recognized initially that the natural rhythms of nonliving nature must be reflected in living nature, in biorhythms of living organisms. Three types of biorhythms are recognized in one classification: exogenic (from the external environment); endogenic (herditary); and "imprinted," a kind of "inherited potential" which appears to be neither of the first two, and is now a matter for further research. A second classification of biorhythms divides all into ecological (related to external environment) and functional (related to internal functions of the organism). The fact that almost all physiological processes have precise rhythms indicates that this is a basic property of living nature. This raises an essential question -- what mechanism ensures this rhythm, and how does the organism "measure time?" In the higher animals, it has been

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fairly well established that the endocrine glands and hypothalamus and the
nervous system maintain this regularity and "measure time." A "general clock"
is sought in the nervous system, and various hypotheses exist as to its
mechanism. The author, following the ideas of Ye. Sokolov of Moscow University,
feels there may be "extrapolation neurons" and traces of past stimuli which
are registered in the nervous system and can develop into "conditioned time
reflexes" in the manner of Pavlov's classical experiment with the dog who began
to salivate at the correct half-hour interval even without sensory stimuli.
Human psychological perception of time can be very precise, and there is a so-
called "neutral interval" about 3.5-7 seconds, which a person can determine
with absolute accuracy. On the other hand, perceptions of time in ordinary
live are usually colored and distorted by a broad range of stimuli and condi-
tions. In speculating on primal notions of time, it seems clear that the ini-
tial ideas of time were closely related to the development of speech and that
they dealt with the natural rhythms of the external world, especially the Sun
and the Moon. In this sense it can be said that primitive man's notion of time
was more accurate, in its clear recognition of rhythms, than is the abstracted
notion ordinarily held today. In conclusion, it is noted that Vladimir Il'ich

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BAGDONAS, A., Nauka i Zhizn', No 1, 1972, pp 37-41

Lenin defined time as a form of the existence of matter. This means that
space and time do not exist of themselves outside of their relationship
with matter. The properties of space and time exist as properties of matter
itself.

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USSR

BAGDOYEV, A. G.; DANOYAN, Z. N. (Yerevan)

"Studies of the Motion of the Mean in the Neighborhood of the Point of Contact of Shock Waves in Linear and Nonlinear Formulations"

Moscow, Zhurnal Vychislitel'noy Matematiki i Matematicheskoy Fiziki; November-December, 1972; pp 1512-29

ABSTRACT: The authors study the problem of determining the solution of an arbitrary linear system of equations of a hyperbolic type with three (t, x, y) and four (t, x, y, z) independent variables in the neighborhood of the point (or line) of contact of a wave of a given type with a point or diffraction wave. The solution is found by means of hypergeometric functions. Later on, simplified nonlinear equations describing the motion of the mean in the given wave region are derived and their solution is obtained for the planar problem. As an example, nonlinear equations in the vicinity of a wave in magnetogas dynamics are derived.
    The article includes 53 equations and three figures. There are 30 references.

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TITLE--ALTERATION OF NATURAL TITANOMAGNETITE AT HIGH PRESSURES AND
   TEMPERATURES -U-

AUTHOR-(04)-BAGINA, O.L., KARPOVA, O.V., LIVSHITS, L.D., PETROVA, G.N.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, FIZ. ZEMLI 1970, (2), 103-7

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--IRON ORE, CURIE POINT, THERMAL EFFECT, SOLID SOLUTION,
   TITANIUM COMPOUND, ARSENIC MINERAL, COPPER COMPOUND, MAGNETIZATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3007/1244   STEP NO--UR/0387/70/000/002/0103/0107

CIRC ACCESSION NO--AP0136655
                        UNCLASSIFIED

UNCLASSIFIED   PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0136655
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NATURAL OLIVINITE ASSOCD. WITH
   TITANOMAGNETITE WAS HEATED AT VARIOUS TEMPS. UP TO 1000DEGREES IN CLOSED
   AMPULS IN A NEUTRAL OR A SLIGHTLY REDUCING ENVIRONMENT. THE CURIE
   POINTS ARE GIVEN TOGETHER WITH THE FRACTION OF SOLID SOLNS. IN THE
   RESULTING PRODUCTS. THE SPECIFIC MAGNETIZATION DEPENDED ON THE AMT. OF
   MAGNETITE PRESENT IN THE SOLID SOLNS.   FACILITY: INST. FIZ.
   ZEMLI, MOSCOW, USSR.   ..

UNCLASSIFIED

TITLE--EFFECT OF MAGNETIC IMPURITIES ON ELECTRON HOLE SINGLET COUPLING -U-

AUTHOR-(02)-TOVSTYUK, K.D., BAGINSKIY, V.M.

COUNTRY OF INFO--USSR

SOURCE--UKRAYIN. FIZ. ZH. (USSR), VOL. 15, NO. 5, P. 780-8 (MAY 1970)

DATE PUBLISHED----MAY70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTRON HOLE, TRANSITION TEMPERATURE, IMPURITY LEVEL,
   ELECTRON SPIN, FERROMAGNETIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1787   STEP NO--UR/0185/70/015/005/0780/0788

CIRC ACCESSION NO--AP0133702